

Amendments to the Specification

Please replace the paragraph beginning on page 4, line 26 with the following amended paragraph :

As should be evident from the foregoing, and as noted above, the rotary valve element 24 is mounted for rotational movement, i.e., journaled, within the recess 25 of the housing 22 and intersects each of the dispensing passages 36 between the entrance openings 36b and the exit openings 36a. The rotary valve element 24 preferably includes a plurality of lands 38 and grooves 40. The grooves 40 include two channel grooves 40a and a plurality of o-ring grooves 40b. The lands 38 include an inner land 38a and plurality of outer lands 38b. The two channel grooves 40a are aligned with the outer dispensing passages 42, and as seen in FIG. 4, a surface 39 defining each groove 40a is spaced from walls 41a and 41b of the housing 22 to allow continuous passage of the adhesive 21 through the dispensing passages 42 during rotation of the valve element 24. As seen in FIG. 2, the channel grooves 40a preferably (although not necessarily) have a width 40w substantially equal to the width of the associated dispensing passage 42. The inner land 38a is disposed between the channel grooves 40a, while the outer lands ~~[[40b]]~~ 38b are disposed on the sides of the channel grooves 40a opposite the inner land 38a. The outer lands 38b are preferably completely enclosed within outer portions 43a, 43b of the housing 22 and are subdivided by the o-ring grooves 40b, which are of size and dimension to contain an o-ring 46. An arrangement of three o-ring grooves 40b and o-rings 46 is preferably provided in each of the lands 38b to keep the adhesive 21 from escaping outwardly in the interface between the rotary valve element 24 and the housing 22. Alternatively, other arrangements to manage the flow of the adhesive in this region (for example, a different number of o-rings in a corresponding number of grooves or a different sealing arrangement and/or sealing elements) are also considered to be within the scope of the present invention.[][]

Please replace the paragraph beginning on page 7, line 3 with the following amended paragraph :

In operation, a substrate 66 is provided, preferably in close proximity to the exit end 36a of the dispensing passages ~~[[35]]~~ 36. As the substrate is moved in relation to the apparatus 20, an adhesive 21 is provided under pressure that passes through the adhesive supply tube 26 and into the inlet passage 34. Because the inlet passage 34 is in fluid communication with each of the dispensing passages 36, the adhesive 21 fills the entire length of the inlet passage 34 and descends into the dispensing passages 36. The motor 28 may then be energized so that the rotary valve element 24 is rotated within the housing 22. The adhesive 21 within the dispensing passages 42 adjacent the outer sections 43a, 43b of the housing 22 flows in the interior grooves 40a and flows out the exit openings 36a of the dispensing passages 42 in a continuous manner. In the remaining dispensing passages 36 intersected by the interior land 38a, the adhesive 21 flows through the rotary valve element 24 intermittently as the rotary valve element 24 rotates. Specifically, as the rotary valve element 24 rotates the apertured sections 48 move from an open position 68 to a closed position 70 (seen in FIG. 2) in relation to the dispensing passages 36. In the open position 68 the bow tie shaped aperture 54 is aligned with the dispensing passage 36 to allow the flow of adhesive 21. In the closed position 70 the bow tie shaped aperture 54 is aligned perpendicular to the dispensing passage 36 thus preventing the passage of adhesive 21. In this regard, it should be noted that the angular extents of one or both outer surfaces 50c, 52c (FIG. 3B) of the wall section 50, 52 should be greater than the angular extents E, F of one or both of openings 45, 47 of the passages 36 so that proper operation is obtained. In this embodiment wherein a rotary valve element 24 having circumferentially offset apertured sections 48 is employed the adhesive is dispensed (i.e., directed toward) and onto a moving substrate 66 in a regular alternating pattern as seen in FIG. 1, provided that the substrate is moved at a constant speed relative to the apparatus 20. The pattern includes continuous outer lines 72 and intermittent inner lines 74.

Please replace the paragraph beginning on page 7, line 28 with the following amended paragraph :

While a rotary valve element for creating a specific pattern on a substrate 66 has been described, alternative rotary valve configurations for producing alternative adhesive patterns may be employed. More specifically, another embodiment of the rotary valve element 24 may include an extended inner land ~~[[48a]]~~ 38a that intersects all of the dispensing passages 36 and two additional apertured sections 48 to allow only intermittent flow rather than continuous flow from the dispensing passages 42. Alternatively, in another embodiment, the apertured sections 48 may be circumferentially aligned with respect to each other such that the adhesive 21 may be dispensed in a regular aligned pattern, as contrasted with the offset pattern shown in FIG. 1. In yet another embodiment, the apertured sections 48 are circumferentially offset by non-zero and unequal angles relative to one another such that the adhesive is dispensed in an irregular pattern. Also the walls 52, 54 may be shaped such that the intermittently dispensed adhesive portion may be longer or shorter than the length of space between the portions. Furthermore, while an embodiment that dispenses the adhesive directly to the substrate 66 has been described, other embodiments of the invention may include further processing of the intermittently dispensed adhesive, such as changing the size of each portion either in cross-section or width or both before application to any member.

Please replace the paragraph beginning on page 10, line 24 with the following amended paragraph :

In operation, a substrate 166 is provided, preferably in close proximity to the exit opening 136a of the dispensing passages ~~[[135]]~~ 136. The apparatus may be started in the first or second position or anywhere in between. As the substrate 166 is moved in relation to the apparatus 120, a continuous flow of adhesive 121 passes through the adhesive supply tube 126 and into the inlet passage 134. Assuming that the valve element is initially disposed in the first position, the adhesive 121 travels through the entire length of the inlet passage 134 and descends into the unblocked dispensing passages 136c, 136d, 136f, 136h and 136j. The motor 128 may then be engaged whereby the axially reciprocating motion of the valve element 124 is initiated within the housing 122. The adhesive 121 within the dispensing passages 136c, 136 j adjacent the outer sections 142 of the housing 122 flows under pressure in the interior grooves 140a and flows out the exit opening 136a of the dispensing channels 136c, 136j in a continuous manner since the interior grooves 40a do not block the entire dispensing channel 36. As adhesive 121 continuously flows into the housing 122 the valve element continues to reciprocate between the first position and the second position thereby blocking and unblocking dispensing passages 136c-136i and creating patterns similar to the patterns discussed in relation to FIG. 1.